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PATENT ABSTRACTS OF JAPAN

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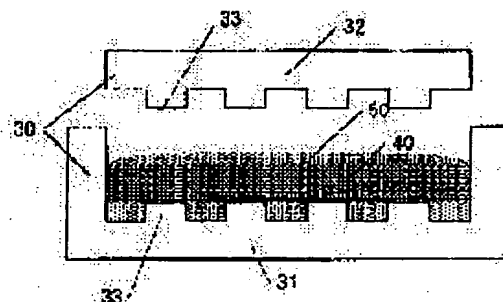
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(54) CELL SEPARATOR FOR FUEL CELL AND ITS MANUFACTURE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a cell separator for a fuel cell having high electric conductivity and excellent productivity and a manufacturing method for it.

SOLUTION: This cell separator for a fuel cell is used for current collection from an electrode by making contact with a pair of electrodes sandwiching an electrolyte film and has a gas flow passage for gas supply on the electrode side; and in this cell separator for the fuel cell, a base material of the separator comprises a three dimensional network structure 40 of a metal material having a fine air-gap part, and a resin material 50 having electric conductivity is densely filled in the fine air-gap part. In a manufacturing method for this cell separator for the fuel cell, after mounting the three dimensional network structure 40 of the metal material having the fine air-gap in a molding die having a protruding part 33 for forming the flow passage, the resin material 50 having electric conductivity is filled in it, and the flow passage is formed by heating and pressing the molding die and the resin material is densely filled in the air-gap of the structure.



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3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] While contacting one pair of electrodes (11) which put an electrolyte membrane (12), respectively and being used for current collection from an electrode It is the separator for fuel cell cels (20) which has a gas passageway for gas supply (21) in the above-mentioned electrode side. The separator for fuel cell cels characterized by coming precisely to fill up the resin ingredient (50) which consists of a three-dimension network structure object (40) with which the base material of this separator consists of a metallic material which has the detailed opening section, and has conductivity in the detailed opening section.

[Claim 2] The separator for fuel cell cels according to claim 1 with which the resin ingredient (50) which has conductivity is characterized by coming to contain the conductive ingredient which it comes to choose out of a carbon fiber, a carbon particle, a metal fiber, and metal powder in thermosetting resin or thermoplastics in the range of 5 - 50 capacity %.

[Claim 3] The separator for fuel cell cels according to claim 2 characterized by coming to choose thermosetting resin out of phenol resin, an epoxy resin, and diallyl phthalate resin.

[Claim 4] The separator for fuel cell cels according to claim 2 characterized by coming to choose thermoplastics out of ABS plastics, PC resin, conversion PPO resin, polyacetal resin, PPS resin, and liquid crystal polymer resin.

[Claim 5] The manufacture approach of the separator for fuel cell cels characterized by being filled up with the resin ingredient (50) which has conductivity, and being precisely filled up with a resin ingredient to the opening section of formation of passage, and the above-mentioned structure by heating of a die and press after laying the three dimension network structure object (40) which consists of a metallic material which has the detailed opening section in the die (30) which has the heights for passage formation (33).

[Claim 6] the injection molding which has the heights for passage formation — public funds — the manufacture approach of the separator for fuel cell cels which carries out injection restoration of the resin ingredient which has conductivity into metal mold, and is characterize by be precisely fill up with a resin ingredient to the opening section of the above-mentioned structure after insert in a mold the three-dimension network structure object which consists of a metallic material which has the detailed opening section.

[Claim 7] The manufacture approach of the separator for fuel cell cels according to claim 5 or 6 that the resin ingredient (50) which has conductivity is characterized by coming to contain a carbon fiber, a carbon particle, a metal fiber, and the conductive ingredient which it comes to choose out of metal powder in thermosetting resin or thermoplastics in the range of 5 - 50 capacity %.

[Claim 8] The manufacture approach of the separator for fuel cell cels according to claim 7 characterized by coming to choose thermosetting resin out of phenol resin, an epoxy resin, and diallyl phthalate resin.

[Claim 9] The manufacture approach of the separator for fuel cell cels according to claim 7 characterized by coming to choose thermoplastics out of ABS plastics, PC resin, conversion PPO resin, polyacetal resin, PPS resin, and liquid crystal polymer resin.

[Translation done.]